AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Please cancel Claims 1-31.

1.(Cancelled).

2. (Cancelled).

3. (Cancelled).

4. (Cancelled).

5. (Cancelled).

6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

12. (Cancelled).

13. (Cancelled).

14. (Cancelled).

15. (Cancelled).

16. (Cancelled).

17. (Cancelled).

18. (Cancelled).

19. (Cancelled).

20. (Cancelled).

21. (Cancelled).

22. (Cancelled).

23. (Cancelled).

24. (Cancelled).

25. (Cancelled).

26. (Cancelled).

27. (Cancelled).

28. (Cancelled).

29. (Cancelled).

30. (Cancelled).

31. (Cancelled).

Please amend Claim 32 as follows:

32. (Currently Amended) An opacity monitor for measuring the opacity of gases in an open path of gases, said opacity being defined as the fraction of transmitted light which is lost in transmission through the open path of gases, said opacity monitor comprising:

an optical transmitter having a light source that projects a homogeneous light beam across the open path of gases;

a reflector for reflecting ~~a portion of~~ said ~~projected~~ homogeneous light beam back towards said optical transmitter through said open path ~~gas~~ of gases;

an analyzer for detecting said ~~portion of said projected~~ reflected homogeneous light beam and calculating the opacity of said gases; and

wherein said ~~optical~~ opacity monitor detects opacities less than 10 percent while operating within specific performance requirements.

33. (Original) The opacity monitor of Claim 32 wherein said light source comprises:

a plurality of light emitting diodes (LEDs) arranged at a predetermined angular orientation with respect to each other and emitting respective light beams therefrom; and

an optical diffuser positioned at a predetermined distance from said plurality of LEDs for mixing and reflecting said respective light beams to form said homogeneous light beam.

34. (Original) The light source of Claim 33 wherein said plurality of LEDs comprises three LEDs.

Please amend Claim 35 as follows:

35. (Currently Amended) The opacity monitor of Claim 34 wherein said predetermined angular orientation comprises ~~arranging~~ said LEDs ~~to be~~ oriented 120° with respect to each other.

36. (Currently Amended) The light source of Claim 35 wherein each of said LEDs comprises a pair of leads and wherein said light source further comprises:

an LED holder having three holes positioned 120° with respect to each other;

a clamp member having holes for each one of said leads; and

wherein said LED holder and said clamp member couple together to maintain said LEDs in said predetermined angular orientation to form said homogeneous light beam.

37. (Original) The light source of Claim 36 wherein each of said LEDs comprises a flattened portion and wherein said clamp member is arranged to orient the flattened portion of each of said LEDs towards each other.

38. (Original) The opacity monitor of Claim 36 wherein each of said LEDs comprises a flange and wherein said optical diffuser comprises an inside surface, said predetermined distance comprising 12.5 mm between said LED flanges and said inside surface.

39. (Original) The opacity monitor of Claim 33 wherein said optical diffuser is supported inside a diffuser holder, said diffuser holder comprising a low-magnesium aluminum alloy.

40. (Original) The opacity monitor of Claim 39 wherein said optical diffuser is supported by inside surfaces of said diffuser holder, said inside surfaces being fine machined to provide increased light output from said light beams.

41. (Original) The opacity monitor of Claim 39 further comprising a glare shield coupled to said diffuser holder.

42. (Original) The opacity monitor of Claim 32 wherein said specific performance requirements comprise all of the requirements of ASTM D6216-98 and including opacity monitoring wherein:

said opacity monitor exhibits a change of less than or equal to 0.2 percent opacity when a supply voltage to said opacity monitor is increased or decreased from a nominal voltage by 10 percent;

said opacity monitor exhibits a change of less than or equal to 0.2 percent opacity for a 40°F (22°C) change in ambient temperature;

said opacity monitor exhibits a change of less than or equal to 0.2 percent opacity when exposed to ambient sunlight over the course of a day;

said opacity monitor exhibits a zero error of 0.2 percent or less;

said opacity monitor exhibits:

(a) a resolution of visual indication of 0.1 percent;

(b) a resolution of analog output of 0.1 percent;

(c) a resolution of digital output of 0.1 percent;

said opacity monitor exhibits a calibration error of less than or equal to 1 percent opacity;

said opacity monitor, when misaligned, displays an indication of that misalignment if a resulting change in opacity is 0.3 percent or greater; and

said opacity monitor exhibits a calibration device repeatability of 0.2 percent or less.

Please cancel Claims 43-57.

43. (Cancelled).

44. (Cancelled).

45. (Cancelled).

46.(Cancelled).

47. (Cancelled).

48. (Cancelled).

49. (Cancelled).

50. (Cancelled).

51. (Cancelled).

52. (Cancelled).

53. (Cancelled).

54. (Cancelled).

55. (Cancelled).

56. (Cancelled).

57. (Cancelled).